

AB-25 - Paper

**Training Needs Analysis in Procurement -
Ensuring Specialist Military Training Input**

**Maj Chris JJ Allender
Lt Col Cliff J Martindill**

**Dr David J Swift
Development, Projects & Research Group,
HQ AG (Personnel and Training Command),
Wiltshire, United Kingdom**

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INTRODUCTION

1. A considerable increase in both the sophistication of, and reliance upon, training technology since the early 1990s has highlighted the need for military training support specialists to have more timely and substantial input to the specification and procurement of such technology, if the latter are to fulfil their potential. In response to this requirement, relevant organisations within the British Armed Forces have augmented their mandated training support procedures and have recommended complementary developments in the wider organisational infrastructure within which they are applied. These procedures developed for the Army are the subject of this paper .

TRAINING SUPPORT IN THE BRITISH ARMY

2. Within the British Army, training support is formally defined as:

"...the advice, guidance and assistance given to the Army to train effectively, efficiently and economically in order to fulfil its operational role. It ensures the systematic development, application and evaluation of training techniques and methods, providing Army training with both quality control and quality assurance." (AGAI, 1994)

3. Since 1968, the provision of training support has been informed by the Systems Approach to Training (SAT). Close variants of SAT are also employed by the Royal Navy and the Royal Air Force and indeed, by the Armed Forces of a number of other nations. Each part of the SAT cycle is elaborated by means of an Army pamphlet which describes a set of endorsed procedures. Responsibility for initially articulating SAT procedures and, if necessary, amending or augmenting them, resides with Training Support Branch. The principles and procedures of SAT are taught to all future training staff and other interested parties by postgraduate qualified military training support specialists – Training Development Officers (TDOs) – working within the Army School of Training Support (ASTS). Each Arm or Service has a Training Development Team (TDT), comprising between three and forty persons of whom at least one is a TDO.

4. While the principles informing SAT have withstood the test of time, the procedures themselves were formulated with classroom instruction and field

exercise application (using operational equipments) primarily in mind. These procedures proved difficult to apply within the procurement system where concerns lay mainly with the specification of dedicated training equipments. The result was that many training equipments were poorly specified and/or arrived too late to support the operational equipment. By the late 1980s, Development, Projects and Research Group, DP&RG (then and until April 1996, Consultancy and Development Wing of ASTS) was developing an ad hoc complementary set of procedures, known as Training Needs Analysis (TNA), in an attempt to overcome such problems. The perceived utility of the new approach led to TNA being made mandatory for all training equipment procurements in excess of £50K (NAO, 1992). To facilitate further the application of TNA, DP&RG formalised TNA procedures in the form of a generic 'how to' guide intended for use only by TDOs (ASTS, 1993). Useful though the first TNA guide was, the procedures were perceived to be too prescriptive for some applications and, to the non-specialist, remained opaque. At the same time, the rapidly increasing scale of training equipment procurement precluded TDOs at contemporary establishment levels from actually conducting all the TNAs that would be needed: guidance on the management of contracted-out TNAs was clearly also required. Accordingly, a second version of the TNA guide was developed to address these emerging concerns (ASTS, 1996). A draft tri-Service TNA Guide was produced in March 1998.

5. In order to explain the rationale behind both the current issue of the tri-Service TNA guide and our plans for its further development and use within procurement projects, it is first necessary briefly to describe relevant features of the British procurement system.

THE BRITISH PROCUREMENT SYSTEM

6. The elements of the British procurement system are sufficiently ramified as to present an initially confusing picture – particularly when one tries to understand how they interact. Fortunately, there are conventionalised approaches to understanding the underlying processes which are more accessible. Thus, the Procurement Cycle (so named because it is rare for an operational equipment to be entirely without precedent or precursor) is characterised by discreet approval stages, with the level of approval and frequency of submissions to the approval authorities being dependent upon cost, sensitivity of the project and procurement strategy. The current Full Procurement Cycle is shown at Figure 2.



Approve Approve Approve Approve award of

Staff Target (ST) Staff Requirement (SR) development production contract

◆ = Approval decision point

Figure 2. Diagram showing the Full Procurement Cycle

7. The Full Procurement Cycle may be modified according to the procurement strategy that is approved. The current main alternatives are: Commercial-Off-The-Shelf (COTS), where there is only very limited or no development, Enhanced-COTS (E-COTS), in which significant development will be required, a mature requirement for which a staff Target and Feasibility Study are not required, or a Public Private Partnership (PPP) where both the capital assets and service are leased from a commercial contractor. Movement through the procurement cycle, whether full or modified, is achieved the Dossier Process. The dossier is prepared by a Dossier Working Group (DWG) and approval is granted by an Equipment Approvals Committee (EAC) or their delegated authorities. The Dossier addresses the equipment requirements, procurement strategy and aspects of supporting strategy.

8. One of the key challenges in dealing with integration of TNA in the procurement system is the resolution of organisational responsibilities. A list of key 'stakeholders' in TNA in the procurement of Army equipments would include at least ten different organisations. Crucially, however, Training Support Branch acknowledges in addition to the Dossier System, two further stakeholder *processes* which overlap with TNA itself and offer potential as 'force multipliers', namely, Integrated Logistic Support (ILS) and Human Factors Integration (HFI – formerly known as 'MANPRINT' in its initial Army specific application). Each of these US pioneered initiatives were introduced during adoption of procurement reforms and both are tri-Service and mandatory.

INTEGRATED LOGISTIC SUPPORT

9. ILS was originally developed and applied in the USA some 20 years ago and introduced into the UK approximately 10 years ago. The Attack Helicopter was one of the first major procurements for the British Army which was subject to ILS. ILS comprises a set of studies and procedures to ensure supportability from conception to disposal for new equipments, and considers whole life costs of projects. The standard for ILS is laid down formally in Defence Standards (DEF STAN 00-60) which defines ILS in the following way:

'A disciplined management approach, affecting both customer and industry, aimed at optimising Life Cycle Costs. It includes elements influencing equipment design and determining support requirements to achieve supportable and supported equipment.'

10. ILS is mandatory for all equipment projects. ILS aspects of each eligible project are normally managed by an ILS Manager (ILSM), who looks after the ILS Plan (ILSP). This is kept current throughout the life of the project. This plan is based on Logistic Support Analysis (LSA), the principal tool of ILS and is the primary means by which the objectives of ILS are achieved and provides an audit trail. These activities consist of a series of analytical tasks which ensure that logistic support considerations influence the design of the equipment; ensure support issues, readiness requirements and cost drivers are identified as early as possible in the equipment life cycle; ensures logistic support resource requirements for the life of the equipment are identified and a logistic support database called the Logistic Support Analysis Record (LSAR) for use in the through-life equipment support management of the equipment is developed.

HUMAN FACTORS INTEGRATION

11. Human Factors Integration (HFI) originated as a US Army management and technical programme using the acronym MANPRINT (MANpower and PeRsonnel INTeGration). The UK committed to MANPRINT in 1988 and renamed it HFI when applied in a tri-Service context. HFI seeks to ensure that, from their inception, project teams adequately address six interrelated Human Factors 'domains', namely, Manpower, Personnel, Training, Human Factors Engineering, System Safety, and Health Hazards, in order to enhance overall system performance and capability, both in operation and maintenance, of manned equipments.

12. In theory, HFI and ILS are complementary initiatives. ILS addresses the reliability, availability and maintainability of equipment, together with support and technical training. With the exception of the logistic aspects of manpower, manning and training, ILS does not cover the six domains of HFI.

TRAINING NEEDS ANALYSIS

13. In light of these considerations, the Army's TNA process was developed according to a number of critical "design principles". These were the need to maximise *concurrency* with the procurement cycle during the development phase of any operational equipment; the need to provide guidance on the

management of the conduct of a TNA, especially where contracted out; the need to make both the conduct and the management (quality control and quality assurance) of the TNA *iterative*; the need to place the emphasis upon *products* (deliverables), not processes; the need to ensure that TNAs examine the *whole life cycle* consequences of training solution implementation; and finally, the need formally to delineate considerations of training effectiveness from those of cost effectiveness. These principles were intended to maximize the scope for integrating TNA with the procurement system without compromising either, and most have been carried forward in a draft tri-Service TNA Guide.

14. The purpose of a TNA is to identify the needs which arise as a result of the introduction into service of a new or changed equipment, to identify and evaluate options which would meet those needs and to recommend the most cost-effective option. The process identifies appropriate training equipments and methods and may be applied to all levels of training. The TNA process is summarised by Figure 3.

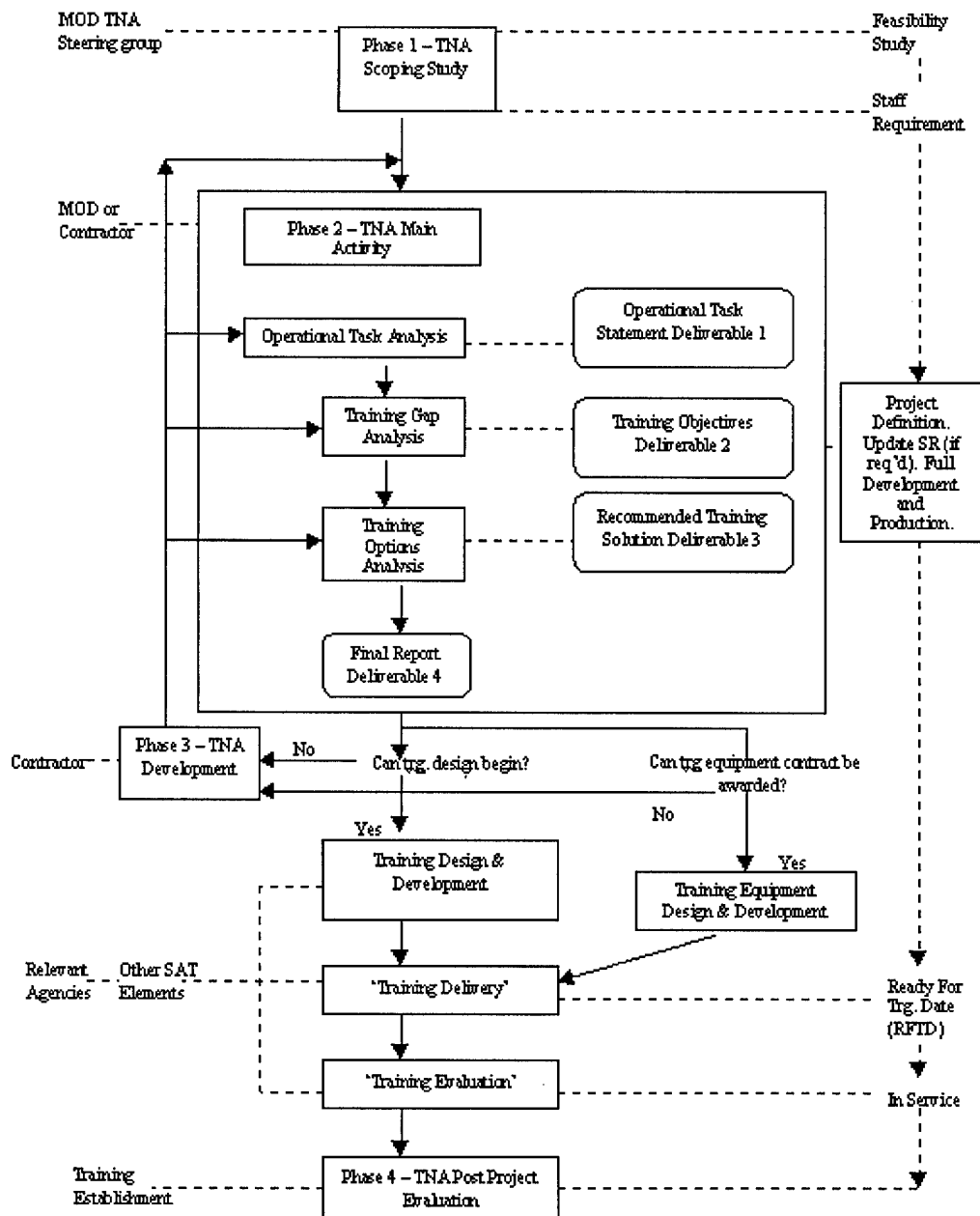


Figure 3. The TNA Process.

A number of developments occurred which have a bearing on the course the TNA/ILS study took and these will now be described.

RECENT DEVELOPMENTS

15. The procurement system is to be modified as part of the 1998 Strategic Defence Review (SDR). The core of the new model will be a single EAC approval point at the end of an 'Assessment' phase which would equate approximately to FS and the early stages of PD as currently construed. The remainder of the stages, "Demonstration" and "Manufacture" are broadly the same as those stages currently specified. A new process for capturing and specifying the requirement is also being developed and future procurement will be based around Integrated Project Teams (IPTs). The IPTs will include all key internal stakeholders as full members and will replace the current largely functional organisations.

16. Whilst ILS ensures that logistic support considerations influence equipment design and resource requirements are specified, this process falls short of adequately addressing training issues, because training is not a core logistic concern, and TNA is not included in ILS. HFI includes training as a domain but, again, does not address TNA specifically, and, more significantly, does not influence beyond an equipment's In Service date (ISD). Both ILS and HFI whilst developing their respective coverage of TNA, were claiming they could subsume it. However, whilst still accepting that they are legitimate stakeholder processes with some degree of overlap with TNA process itself, neither adequately addresses the requirement for TNA.

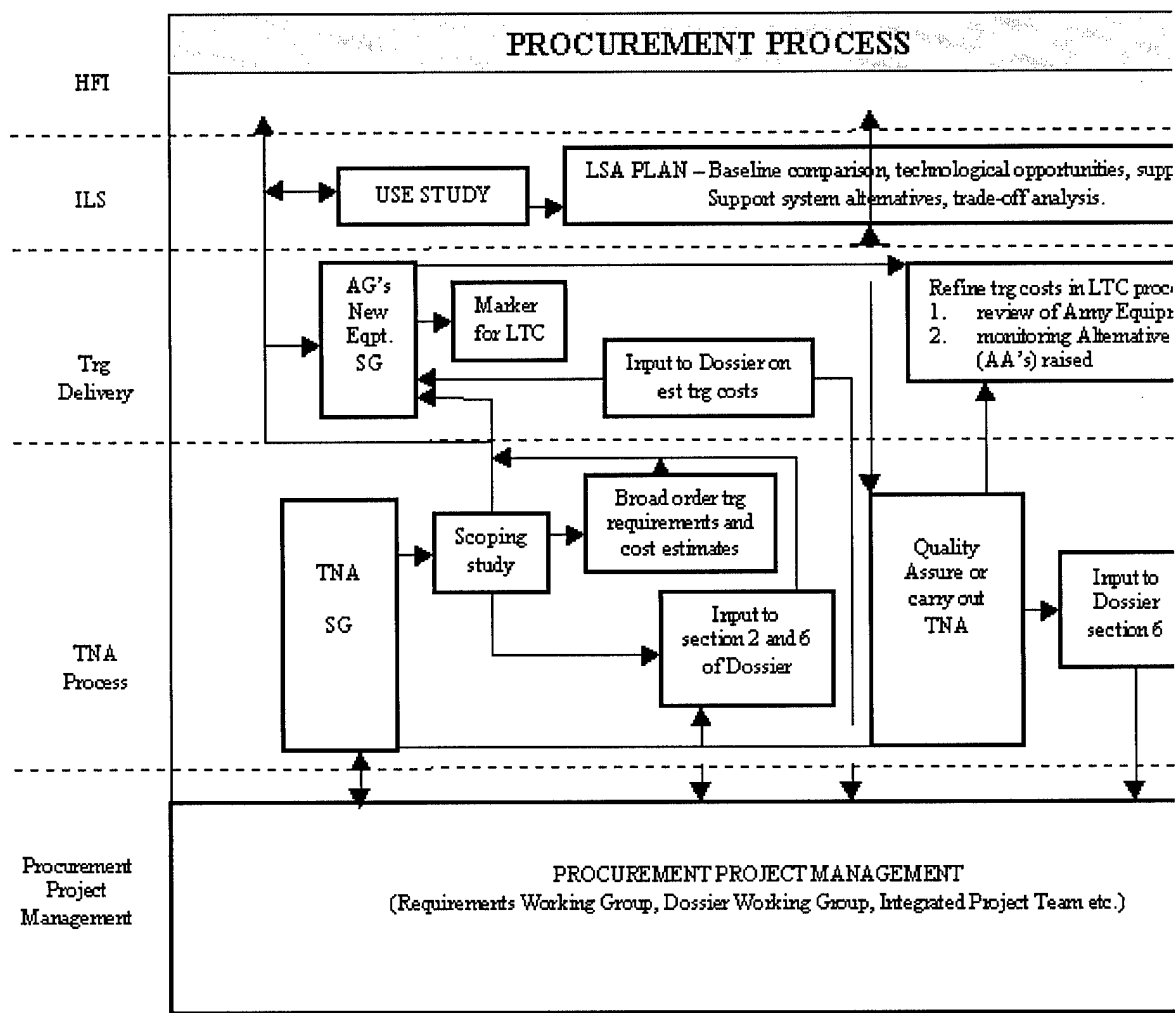
17. Options were therefore considered. These included doing nothing to alter the situation, thus relying on ILS and HFI adequately covering TNA eventually; subsuming TNA within ILS; subsuming TNA within HFI; or integrating TNA with HFI, ILS and the Dossier System. It became clear that by altering the emphasis of our work from actually doing TNAs to Quality Assuring contractor TNAs, it would be possible to give satisfactory coverage to new equipment procurement projects.

TNA/ILS INTEGRATION STUDY

18. The findings of this study fall into four key areas:

- a. Requirement for TNA in the Procurement Cycle. The value of and requirement for TNA are now widely accepted and established as part of the procurement process, and there has been, increasingly, a tri-Service approach to ensuring that this remains so. Problems can be solved by articulation of ownership by AG.
- b. Procedures and Documentation. Formalised procedures and supporting documentation are essential. ILS compatible training documentation has been developed and provides a valuable basis for further development of generic materials with tri-Service application.
- c. Integrated Project Management. The key to integrating TNA with the Procurement Cycle is to be found in establishing the relationships between the Dossier System, ILS and Human Factors Integration (HFI) and the place of TNA therein. Integrated Project Management is clearly the way forward and provides a means of ensuring key stakeholder involvement throughout the process.
- d. Resources. The requirement for all procurement projects to include a TNA and for the Quality Assurance of contracted out analyses to be carried out by Military Training Support specialists is likely to have resource implications for HQ AG and Training Development Teams. This issue needs to be addressed, together with the associated supporting training provision for those involved with all aspects of TNA.

19. Whilst the TNA process should normally be integrated with HFI, ILS and the Dossier System, it should also be capable of being implemented autonomously, as decided on a project by project basis. Figure 4 shows how the iterative TNA process could support the overall project management of the equipment, including the requisite development of the Long Term Costing (LTC) line for training delivery.



the development of simulators for which the requirement is not prompted by the acquisition of specific new prime equipments (e.g. Combined Arms Tactical Trainer). These are important areas which will require detailed examination.

CONCLUSION

21. Concerns regarding the adequacy of training provision in procurement projects are now widely shared. This is probably due to a recognition that, with the increasing emphasis and reliance on sophisticated training devices, any shortcomings are likely severely to compromise operational effectiveness. The nature of the problem is the lack of early identification of the training requirement for the introduction of all new equipments. However, a major element in the solution of the problem is an increased involvement of training specialists in the procurement process. The mechanism for ensuring adequate training provision appear to be in place and working in more recent projects, but are not guaranteed. Relatively modest amendments to the procurement system, but with associated resource implications, will achieve resolution of the problem, in relation to equipment-based projects.

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Professional Development and
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Navy Advancement Center Dept
Dr. Grover Diesel, (850) 452-1815
6490 Saufley Field Road
Pensacola, FL 32509-5237

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